13 Traffic and Transport

13 TRAFFIC AND TRANSPORT 1

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13.1 Introduction

This Chapter of the Environmental Impact Assessment Report (EIAR) has been prepared by ILTP Consulting (ILTP) and assesses any likely and significant impacts associated with traffic due to the proposed development. Mitigation measures are proposed where negative effects are identified.

This Traffic section of the Material Assets chapter has been prepared by Christy O'Sullivan and Ben Waite of ILTP. Christy O'Sullivan is the Managing Director of ILTP and has 30+ years of experience in traffic and transport engineering and planning. Ben Waite is a Senior Transport Analyst with over 12 years' experience in traffic and transport design, analysis and planning.

Full details of the Traffic Impact Assessment undertaken by ILTP are included in the Traffic & Transport Assessment and Mobility Management Plan report included under separate cover as part of the planning application for the proposed development.

13.2 Study Methodology

The following methodology has been adopted for this assessment:

- ILTP coordinated traffic count surveys undertaken in May 2019 in order to collate the full set of traffic data considered necessary to support the planning application for the proposed development. The current Covid-19 restrictions have significantly reduced traffic flows overall and buses and trains are operating to reduced schedules. Therefore, using the 2019 traffic data appropriately factored to opening year is the most reliable indicator of current traffic flow pattens that would otherwise in a non-Covid situation.
- ILTP conducted an assessment of available information on projected traffic trends, including the Transport Strategy for Greater Dublin Area, the current Dun Laoghaire-Rathdown County Development Plan 2016-2022 and Smarter Travel a Sustainable Transport Future.
- ILTP calculated the estimated trip rates from the proposed development and added these figures to the base flows. A Picady analysis was also undertaken to assess the capacity of the proposed access onto Leopardstown Road. Picady and LinSig Traffic Signal Junction modelling software was also utilised to access the capacity of the adjacent junctions with the proposed development in place.
- From these results a conclusion could be drawn as to the impact that the development will have on the overall traffic flows. Once details were available ILTP then assessed what impact the development had on the road network.
- As assessment of public transport provisions in the area was also carried out to determine the likely usage of public transport services by residents and visitors to the new development.
- As part of the Traffic & Transport (TTA) undertaken, ILTP prepared a Mobility Management Plan for the proposed development, with the specific objectives of reducing in overall terms both the number of trips generated by the development and ensuring that greater numbers use the extensive public transport services in the immediate area.
- ILTP also assessed the construction stage traffic impacts of the proposed development on the wider road network.
- In terms of projecting future year traffic scenarios beyond the 2019 Base Year, the assumed Opening Year of the proposed development was taken to be 2023, with the Design Year taken as 2038.
- Pre-planning discussions also took place with DLR on the proposed access strategy in advance of the tri-partite with the Board.

13.3 The Existing Receiving Environment (Baseline)

This section considers the baseline conditions, providing background information for the site in order to determine the significance of any traffic implications. This section also considers the existing accessibility of the site by sustainable modes of transport.

The development site is strategically located between the M50 motorway and N11 Dual Carriageway. The site is adjoined to the west by the Silverpines residential estate and to the north and northeast by the Leopardstown Park / Court / Drive residential estates.

The southern boundary of the site consists of 9 no. existing detached residential properties along Leopardstown Road. In total there are 10 no. existing residential properties on the subject site.

The St. Josephs' House, is located in the north west of the site. St Josephs' is currently accessed from the N31 Brewery Road and through the Silverpines residential estate. Leopardstown Racecourse and Foxrock Golf Club are located on the opposite side of Leopardstown Road. The proposed development is also located near to employment areas, particularly in Central Park and the Sandyford Industrial Estate. The subject site is to the east of the Luas Green Line running from Cherrywood to the City Centre. The subject site in the context of the existing receiving environment is shown in Figure 13.1.

Figure 13.1 Subject Site in the context of Existing Receiving Environment

The closest bus stop is located on Leopardstown Road adjacent to the proposed entrance to the development, which is on the 114-route connecting Ticknock and Blackrock Rail Station. The bus stop to the immediate northwest of the site on Brewery Road, which is approximately 3 minutes' walk, is served by the 118-bus route travelling between Kiltiernan and D'Olier St.

The closest bus stop on the N11 is approximately 16 minute walk away from the centre of the subject site, and is served by the 46A, 70, 75, 84X and 145 bus routes with services between the city centre at 10 minute intervals at peak periods.

Both the Sandyford and Central Park Luas Stops are approximately 10 minutes walking distance away from the subject site. The Sandyford and Central Park Luas stops can be accessed via the

Greenway to the immediate northeast of the subject site. This would result in shorter walk distances from the subject site to the preferred direction of travel.

Radial distances from both the subject site and Sandyford and Central Park Luas Stations are shown graphically in Figure 13.2. Public Transport services within 500m and 1000m of the site are also shown.

Figure 13.2: Radial Distance from Subject Site and Sandyford and Central Park Luas Stations

Base Year Traffic Conditions

In order to assess the traffic impact of the proposed development it was first necessary to assess the current traffic situation in the area. Site appraisals and fully classified traffic counts in the environs of the proposed development were undertaken by ILTP in May 2019.

The current Covid-19 restrictions have significantly reduced traffic flows overall and buses and trains are operating to reduced schedules. Therefore, using the 2019 traffic data appropriately factored to opening year is the most reliable indicator of current traffic flow patterns that would otherwise occur in a non-Covid situation.

Detailed traffic flow survey results were obtained from the analysed survey data. Appropriate growth factors were then applied to these volumes up to 2023 Opening Year and 2038 Design Year.

The turning counts and flows for the AM 08:00 – 09:00 and PM 17:00 – 18:00 peak hours are illustrated in Figures 13.4 and 13.5.

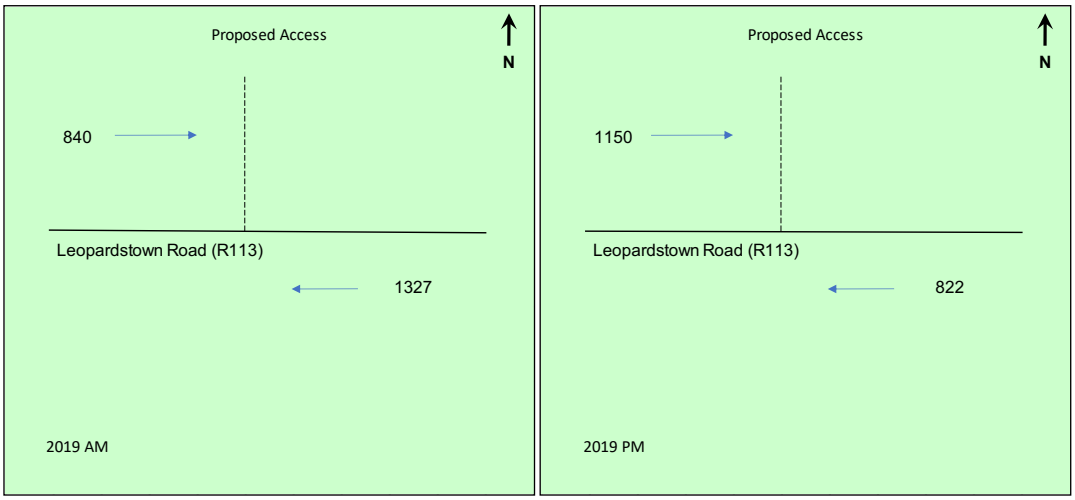

Figure 13.3 - Peak Hour Traffic Flows on Leopardstown Road at Location of Proposed Access

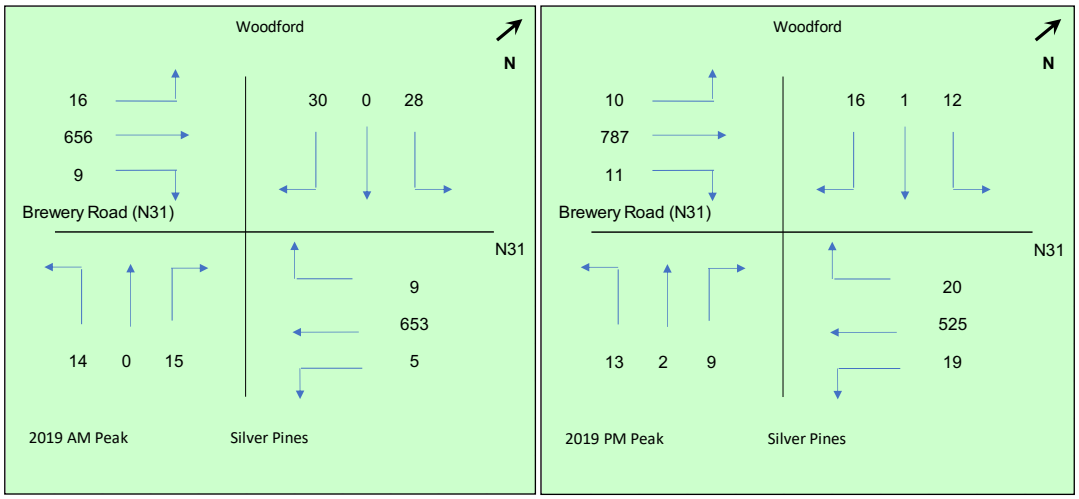

Figure 13.4 - Peak Hour Traffic Flows at junction of Brewery Road / Silverpines / Woodford

Details of the traffic count surveys undertaken are included in the *Traffic & Transport Assessment and Mobility Management Plan* report included separately.

LinSig signalised junction traffic models were undertaken for the following junctions in closest proximity to the location of the proposed development:

- Silver Pines / Brewery Road (N31) Junction

The traffic modelling analyses for the 2019 Base Year show that the existing junction is operating within capacity during peak hour traffic conditions without the proposed development in place.

There is a permanent traffic counter on the N31 Brewery Road, which allows for longer traffic growth trend to be assessed. The data from this permanent TII (Transport Infrastructure Ireland) counter is summarised in Table 13.1. This shows that over the past number of years traffic flows along Brewery Road have not grown in recent years and if anything, have shown a slight decline overall. This is in keeping with ongoing sustainable transport policies of promoting more sustainable modes of travel and in locating new residential development closer to employment centres.

	2021*	2020*	2019	2018	2017	2016	2015	2014	2013
AADT	10,137	11,379	15,538	15,687	16,066	15,530	15,824	16,018	15,880
%HGV	2.1%	2.3%	2%	2.1%	1.7%	1.7%	1.7%	1.5%	1.4%
Coverage	40.1%	100%	99.7%	99.5%	99.7%	99.7%	99.7%	99.7%	83.6%

(*Traffic data from 2020 to 2021 impacted by Covid-19 Restrictions)

Table 13.1 - Traffic Growth Trends on N31

Projecting Future Year Traffic

In terms of projecting future year traffic scenarios beyond the 2019 Base Year, the assumed Opening Year of the proposed development was taken to be 2023, with the Design Year taken as 2038.

Following the conclusion of the statutory 247 consultation process with Dun Laoghaire Rathdown County Council (DLRCC), ILTP made a number of robust assumptions in respect to traffic increases that might result from the proposed development.

Smarter Travel a Sustainable Transport Future has as its goal a shift from car dependency to more sustainable modes of transport as such future planned development will have to have a high level of sustainability. This will in turn lead to a move away from car dependency particularly in city and central locations served by public transport such as the proposed development site.

Furthermore, the Smarter Travel document states that:

"The total kilometres travelled by the car fleet in 2020 will not increase significantly from current total car kilometres."

This will be particularly true in Town Centre locations and on radial routes into and out of Dublin City Centre. It is noted however, that traffic levels on radial routes into and out of Dublin City Centre, have declined over the past 10 years, as is shown in sources such as the *DCC / NTA Canal Cordon Report* 2018.

In terms of future traffic growth rates, TII has traffic projections for the period 2016 – 2030, and beyond. There are different growth rates for different areas. The central growth projection within Dublin metropolitan area over 1 per cent but declining over time. This covers the entire metropolitan area, and these growth rates are generally used for planned new infrastructure projects. However, on radial routes into the city and in established residential areas traffic flow growth rate are non-existent or reducing, which is in keeping with overall sustainable transport policy objective and also verified by historic TII data for Brewery Road.

It is considered that future background traffic growth at the subject site will be low or static due to the established urban setting, the provision of bus, rail, and existing and planned improvements in the cycling and pedestrian environment. This is in line the policies and objectives set down in Smarter Travel - A Sustainable Transport Future 2009 – 2020 and the current CDP.

Furthermore, current Government and DLRCC modal shift targets to more sustainable forms of transport are likely to yield a notable drop in background traffic in the short to medium term, particularly where frequent and reliable public transport services are in operation within a convenient short walking distance, as is the case with the proposed development.

Table 6.1: Link-Based Growth Rates: Metropolitan Area Annual Growth Rates

Metropolitan Area	Low Sensitivity Growth Rates						Central Growth Rates						High Sensitivity Growth Rates					
	2016-2030		2030-2040		2040-2050		2016-2030		2030-2040		2040-2050		2016-2030		2030-2040		2040-2050	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Dublin	1.0146	1.0280	1.0034	1.0116	1.0028	1.0144	1.0162	1.0295	1.0051	1.0136	1.0044	1.0162	1.0191	1.0328	1.0087	1.0172	1.0093	1.0256
Cork	1.0153	1.0279	1.0072	1.0128	1.0065	1.0164	1.0169	1.0294	1.0090	1.0149	1.0083	1.0182	1.0202	1.0328	1.0125	1.0185	1.0166	1.0276
Galway	1.0154	1.0201	1.0077	1.0164	1.0079	1.0203	1.0169	1.0217	1.0097	1.0182	1.0095	1.0220	1.0203	1.0250	1.0131	1.0217	1.0178	1.0313
Limerick	1.0158	1.0313	1.0052	1.0113	1.0050	1.0158	1.0174	1.0329	1.0070	1.0134	1.0069	1.0177	1.0218	1.0364	1.0106	1.0171	1.0146	1.0273
Waterford	1.0123	1.0301	1.0031	1.0131	1.0029	1.0175	1.0140	1.0317	1.0052	1.0153	1.0050	1.0194	1.0173	1.0352	1.0091	1.0194	1.0122	1.0300

Figure 13.6 - Proposed Traffic Growth Rates (Source: Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections – PE-PAG-02017, May 2019)

The assumed growth in background traffic up to the 2023 Opening Year included in the traffic impact assessment also allows for general development related traffic generation in the area and is regarded as a robust assumption.

No further growth in background traffic is assumed between the assumed 2023 Opening Year and 2038 Design Year, which is consistent with the DLRCC objectives and wider national policy objectives.

13.4 Characteristics of the Proposed Development

The development will consist of a new residential development on a site of c. 2.74 ha (2.54ha net) as follows:

- The demolition of 10 no. properties and associated outbuildings at 'Madona House' (single storey), 'Woodleigh' (2 storeys), 'Cloonagh' (2 storeys), 'Souk El Raab (2 storeys), 'Welbrook' (2 storeys), 'Calador' (2 storeys), 'Alhambra' (2 storeys), 'Dalwhinnie' (2 storeys), 'Annaghkeen' (2 storeys) and 'The Crossing' (single storey) (combined demolition approx. 2,291.3 sq m GFA).
- The refurbishment, separation and material change of use of Saint Joseph's House (a Protected Structure) from residential care facility to residential use
- 463 residential (apartment) units, (in the form of 6 no. residential blocks (Blocks A-F) ranging from 2 to 10 storeys over basement as follows:
- 85 no. studio apartments,
- 117 no. 1 bed apartments,
- 248 no. 2 bed apartments,
- 13 no. 3 bed apartments
- Residential tenant amenity space of (approx. 636sq m), café (approx. 49sqm) and creche Facility (282 sq m)
- 259 no. Car Parking Spaces (232 no. at basement level and 27 no. at surface level)
- 968 no. Bicycle Parking Spaces (816 at basement level and 152 at ground level)
- 10 no. Motorcycle Spaces (all at basement level)
- Public Open Space
- Vehicular Access
- Basement Areas
- 3 no. ESB Sub Stations and 2 no. Switch Rooms
- All Associated Site Development Works

Proposals for vehicular access comprise 1 no. existing vehicular access point via Silver Pines (an existing all movement junction onto Brewery Road) and 1 no. new vehicular access point at the general location of 'Annaghkeen' at Leopardstown Road (a new Left In / Left Out junction arrangement). The new access point along Leopardstown Road will replace 9 no. existing access points at 'Woodleigh', 'Cloonagh', 'Souk El Raab', 'Welbrook', 'Calador', 'Alhambra', 'Dalwhinnie', 'Annaghkeen' and 'The Crossing'. New pedestrian and cyclist linkages are proposed through the site, which provide permeability to Leopardstown Road and the adjoining Greenway. Proposals also provide for the relocation of an existing bus stop along Leopardstown Road.

The associated site and infrastructural works include provision for water services; foul and surface water drainage and connections; attenuation proposals; permeable paving; all landscaping works; boundary treatment; internal roads and footpaths; and electrical services.

13.5 Potential Impact of the Proposed Development

Construction Stage

Typical construction working hours on site are expected to be as follows:

- Mondays to Fridays – 7.00am to 7.00pm
- Saturday – 8.00am to 2.00pm
- Sundays and Public Holidays – No activity on site

A detailed Construction Traffic Management Plan (CTMP) will be prepared and submitted to the planning authority prior to commencement of construction of the development.

Various route proposals were assessed for accessing the construction site, however, it was decided that the route with the least impact on the adjoining road network would be the most prudent, as it would reduce conflict with other vehicles.

Construction traffic will access the site from Leopardstown Road with no construction traffic allowed to use the Silverpines Residential Estate. Based on the quantities of excavation and fill to be moved to or from the site, construction waste removal, and general site deliveries for the intended construction works, HGV traffic is estimated to be a maximum of 10 movements per hour.

It is projected that the works will result in approximately 40 to 60 construction workers on site during typical construction period, with a maximum of 150 construction personnel on site concurrently during short period of peak activity. Given typical construction working hours the majority of these personnel are expected to arrive to site in advance of the 08:00 – 09:00 morning peak hour and after the 18:00 evening peak hour. The construction and demolition programme is intended to commence in early of 2022 and first occupation expected by late 2023.

This volume of construction traffic estimated to be generated during peak traffic hours is lower than the peak volumes projected for the operational phase of the development.

Beyond the bulk earthworks stage, other stages during construction are estimated to have lower HGV volumes and lower traffic volumes overall.

The projected peak volume of construction traffic, including both truck and staff movements, is lower than the peak traffic volumes projected for the fully occupied development during the operational stage, as set out below.

Therefore, in Traffic Impact Assessment terms, the most onerous scenario to assess in terms of capacity and traffic impact is the operational stage of the development.

Systematic Definition of Effects

The likely effect of the proposed development during the construction phase will be:

Additional HGV traffic along the proposed designated haul route which will have a slight short-term adverse effect on the local road network during the construction works.

Additional construction personnel car / light vehicle movements which will have an insignificant short-term adverse effect on the local road network during the construction works.

Construction vehicle movements associated the proposed development or when undergoing service connections on the public road, which will have a slight short-term adverse effect on traffic movements on these roads in the vicinity of the proposed development.

Construction vehicle movements and works to Leopardstown Road which will have a slight short-term adverse effect on pedestrian and cycle movements on these roads in the vicinity of the proposed

development, for example due to pedestrians and cyclists having to give way at the construction access to the site and / or divert around construction works.

For further details relating to the construction phase of the proposed development refer to the 'Construction Traffic Impact Assessment' section of the *Traffic & Transport Assessment and Mobility Management Plan* report, the Construction Environmental Management Plan (CMP) and Construction & Demolition Waste Management Plan (CDWMP), which are included separately with this application and EIAR.

Operational Stage

Traffic Projections for Proposed Development

ILTP prepared estimates of the overall Traffic increases that would result from the proposed development.

Best practice, in term of estimating the likely trip generation of new development, is to use comparator development trip generators.

ILTP have estimated trip generation figures for the proposed development with reference to comparator developments based on their experience in Ireland and having regard to the range of trip rate from the TRICS database. The reduced car parking, below the CDP maximum standards are also likely to result in lower traffic movement associated with the completed development to that assumed in the TTA.

Future Year Scenarios – Without and With Proposed Development

Full details of the Trip Generation volumes and Traffic Impact Assessment of the proposed development are included in the Traffic and Transport Assessment & Mobility Management Plan report

No further growth in background traffic is assumed between the 2023 Opening Year and 2038 Design Year, which is consistent with the overall transport strategy for the Dublin area and wider national policy objectives.

Therefore, for the 2038 Design Year it was assumed that the 2023 traffic volumes without and with the proposed development would persist, which would represent a worse-case scenario.

Projected Trip Generation for Proposed Development

For EIAR and TTA evaluation purposes ILTP have however assumed that some growth in background traffic would arise over the short term and that the development itself will generate additional traffic movements on the road network, which represents a worse-case scenario in terms of evaluation methodology.

As set out above, best practice in terms of estimating the likely trip generation of new development is to use comparator development trip generators. The proposed trip rates for the residential element have been assessed from ILTP's experience of comparator developments and with reference to the TRICS database.

Land use	Type	Number of Units / GFA	AM Rate		PM Rate		AM Trips		PM Trips	
			Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Blocks A, B, C, D & F	Apartments	454	0.05	0.14	0.1	0.06	23	64	45	27
Redeveloped St. Joseph's House (Block E)	Apartments	9	0.05	0.14	0.1	0.06	0	1	1	1
Café	Café	49 sq.m	1	1	1	1	1	1	1	1
Creche	Creche	282 sq.m	2.30 per sq.m	1.95 per sq.m	2.75 per sq.m	2.90 per sq. m	3	2	3	3
							AM Trips		PM Trips	
							Arr	Dep	Arr	Dep
Total Projected Trips							27	67	50	32
via Leopardstown Road Access							8	14	14	6
via Brewery Road Access							19	54	36	26

Table 13.2 - Proposed Weekday Peak Hour Trip Generation Volumes on Adjoining Road Network

The revised Trip Generation assessment yields an estimate of an additional 27 no. inward and 72 no. outward trips for the AM peak hour (08:00 – 09:00). An additional 53 no. inward trips and 33 no. outward trips were estimated for the PM peak hour (17:00 – 18:00).

As the AM and PM peaks are the times of the day with the highest level of traffic volumes it can be assumed that if the road network can perform effectively at these times, it will meet all demands placed upon it.

Junction Capacity Assessments

A Picady traffic modelling analysis was undertaken for peak weekday and weekend periods to assess the capacity of the proposed left in left out access junction onto Leopardstown Road with the proposed development traffic in place.

The Picady analysis found that the approach arms of the proposed access junction will operate at or below 10% capacity with the peak hour development traffic in place. This confirms the proposed access junction has more than adequate capacity for the proposed development. Further details of the Picady traffic modelling analysis are included in the Traffic and Transport Assessment & Mobility Management Plan report, included separately.

ILTP also conducted a LinSig (signalised junction) capacity assessment of the existing Silverpines / Brewery Road (N31) junction.

The LinSig model results for the junction showed that by even applying robust traffic generation figures, the junction had ample capacity during peak weekday periods with the proposed development in place.

For further details of the traffic analysis and wider traffic impact assessment refer to the Updated Traffic and Transport Assessment & Mobility Management Plan report, included separately with the wider response to the Further Information Request for the proposed development.

Systematic Definition of Effects

The likely effect of the proposed development during the operational phase will be additional traffic which will have a slight long-term adverse effect on the adjoining road network.

The proposed development will not give rise to any likely significant long-term adverse traffic effects.

The proposed pedestrian routes through the proposed development would have significant long-term positive effects regarding reduced walking and cycling travel times to public transport services and improved permeability and connectivity to amenities in the area.

13.6 Potential Cumulative Impacts

As there are new proposed developments in the area, and limited land available to be developed, there is likely to be little additional cumulative effects on the surrounding road network, other than this proposed development. The factoring of the base year (2019) traffic to the opening year (2023) also accounts for any growth that might be expected from any other new development in the area.

13.7 Do Nothing Scenario

Should the proposed development not take place, the access roads and infrastructure will remain in their current state and there will be no change. Background traffic would not be expected to grow significantly over time.

In the absence of the proposed development being constructed, the permitted development (D17A/0337/PL06D.249248) would likely be implemented. The seven large, detached houses on large plots fronting Leopardstown Road (i.e. the part of the site added subsequent to the granting of the above permission) would remain in use as individual dwellings. This would not fully realise the potential of the subject site for sustainable residential use in line with the current national policy mandate."

13.8 Risks to Human Health

The proposed development will result in slightly increased traffic on surrounding roads during both the construction and operation stages. Due to the mitigation measures proposed, the risk to human health as a result of this slight increase in traffic is minimal.

13.9 Mitigation Measures

The MMP also sets out a series of mitigation measure that will reduce traffic from the proposed development at operational phase through the promotion of sustainable travel modes.

Construction Stage

Identified Effect: Additional HGV traffic along proposed designated haul route which will have a slight short-term adverse effect on the local road network during the construction works.

Mitigation Measures:

In order to reduce the potential impacts described above, remedial and mitigation measures will be implemented as set out below and in the Construction Environmental Management Plan included under a separate cover with this application.

Tracked excavators will be moved to and from the Site on low-loaders and will not be permitted to drive onto the adjacent roadway.

The applicant shall at all times keep all public and private roads and footpaths entirely free of excavated materials, debris and rubbish.

Public roads outside the Site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.

The applicant shall be responsible for and make good any damages to existing roads or footpaths caused by his own contractors or suppliers transporting to and from the Site.

The contractor shall confine his activities to the area of the Site occupied by the works and the builders' compound, as far as practicably possible, during any particular phase of the works.

Identified Effect: Additional construction personnel car / light vehicle movements which will have an insignificant short-term adverse effect on the local road network during the construction works.

Mitigation Measures:

All construction workers will be encouraged to use public transport, and also to car share where appropriate. On site staff car parking can also be provided to ensure no construction workers will be required to park on adjacent roads or streets.

No daytime or night-time parking of site vehicles or construction staff vehicles will be permitted outside agreed areas.

Identified Effect: Construction vehicle movements and works on Leopardstown Road when forming the new junction with the proposed development or when undergoing service connections on the public road, which will have a slight short-term adverse effect on traffic movements on these roads in the vicinity of the proposed development.

Mitigation Measures:

Construction work will be limited to normal working hours; that are 07.00 – 19.00 on weekdays and 08.00 – 14.00 on Saturdays. All deliveries of materials, plant and machinery to the Site and removals of waste or other material will take place within the permitted hours of work. Vehicle movements will be planned to ensure arrival and departure times are maintained inside the agreed working hours.

Deliveries will be co-ordinated to prevent queuing of vehicles adversely affecting traffic flow and to minimise disruption to local traffic. They will be timed and coordinated to avoid conflict with collection of waste, other deliveries (particularly to adjoining owners), and rush hour traffic. Large deliveries will be scheduled outside peak traffic hours to minimise disruption.

Properly designed and designated access and egress points to the construction site will be used to minimise impact on external traffic.

Identified Effect: Construction works and construction vehicle movements on the local road network will have a slight short-term adverse effect on pedestrian and cycle movements on these roads in the vicinity of the proposed development, for example due to pedestrians and cyclists having to give way at the construction access to the Site and / or divert around construction works on these roads.

Mitigation Measures:

Priority to keep construction vehicles and pedestrians apart.

Separate entry and exit gateways will be provided for pedestrians and vehicles with a gate man in attendance to interface with the traffic and public to facilitate safe access and egress of vehicles.

Firm, level, and well-drained pedestrian walkways will be provided.

Measures will be implemented to ensure drivers driving out onto public roads can see both ways along the footway before they move on to it.

Footpaths will not be blocked resulting in pedestrians having to step onto the carriageway.

The final Construction Traffic Management Plan with be submitted and agreed with the planning authority prior to the commencement of any development.

Operational Stage

Identified Effect: The likely effect of the proposed development will be additional traffic which may have a slight long-term adverse effect on the adjoining road network.

The following traffic mitigation measures shall be implemented for the operational phase of the development:

- A Mobility Management Plan has been prepared for the proposed development which includes recommended mitigation measures to reduce usage of private cars and increase the use by residents and patrons within the development of more sustainable modes of travel, such as including good cycle parking provision, will further promote the greater use of sustainable travel modes. It is projected that successful implementation of the mobility management mitigation measures included will reduce the vehicular trip generation from the proposed development below that included for in the Traffic Impact Assessment for the proposed development. For further details refer to the *Traffic & Transport Assessment and Mobility Management Plan* included separately with the wider response to the Further Information Request for the proposed development.
- A Stage 2 Road Safety Audit will be undertaken at the detailed design stage to ensure that the final design is in accordance with the RSA Guidelines prior to the commencement of construction. A Stage 3 post construction and pre-opening of the proposed development in accordance with RSA guidelines to address any potential road safety issues related to the completed scheme.
- During the operational phase of the development, it is projected that the adjoining road network can readily accommodate the additional traffic from the proposed development. Full details of traffic modelling assumptions and results are included in the *Traffic & Transport Assessment and Mobility Management Plan* report completed by ILTP for the proposed development, included separately with the wider response to the Further Information Request for the proposed development.

13.10 Predicted Impacts of the Proposed Development

Construction Stage

Due to the proposed mitigation measures outlined above, the impact of the proposed development will be temporary and minimised during the construction stage.

Operational Stage

There will be a slight increase in the use of the road network by private vehicles. A mobility management plan will promote more sustainable forms of transport

There will be an increase in the number of pedestrians and cyclists in the surroundings of the development. However, footpaths and cycling paths are provided as part of the development, thus, impact should be minimal.

13.11 Monitoring

Construction Stage

In advance of work starting on site the works Contractor will author a Construction Methodology document taking into account their approach and any additional requirements of the Design Team or Planning Regulator. The Contractor will also prepare a Construction Management Plan (CMP) and Environmental Plan. The Construction Management Plan sets out the overarching vision of how the construction of the project will be managed in a safe and organised manner by the Contractor with the oversight of the Developer. The CMP is a living document and it will go through a number of iterations before works commence and during the works. It will set out requirements and standards

which must be met during the construction stage and will include the relevant mitigation measures outlined in the EIAR and any subsequent conditions relevant to the project. The Outline Construction Management Plan and the Outline Construction and Demolition Waste Management Plan are included in the main submission.

Further specific monitoring measures are set out below:

- A site liaison officer will be identified as a single contact point for the planning authority and local community to deal in a prompt and efficient manner with any issues that may arise in relation to construction traffic and activity on the public road.
- Public roads outside the Site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.
- Site personnel will be present on the public road at the site access junction at all times during the construction of the proposed access to facilitate the safe movement of:
    - Construction vehicles to and from the Site
    - Road users in the vicinity of the site access or any construction works on these roads

Operational Stage

As part of the Mobility Management Plan for the proposed development it is recommended that a Mobility Manager be appointed by the Management Company. The Mobility Manager will also be involved in monitoring of the modes of travel to and from the proposed development. This ideally will be done on an annual basis. Monitoring of travel patterns will facilitate the provision of sustainable transport modes and ensure that modal targets are met.

13.12 Reinstatement

Reinstatement is not applicable to this chapter.

13.13 Interactions

Construction Phase

A Construction Traffic Management Plan will be put in place and agreed with the planning authority which will minimise the traffic impact during construction stage. This will be coordinated with the wider Construction Environmental Management Plan to minimise Noise, Air Quality and Human Health impacts.

The traffic impacts, which would also be temporary in duration during construction are not considered to be significant due to the implementation of the mitigation measures identified in Section. 13.9.1

Operational Phase

The estimated 2019 Base Year, 2023 Opening Year and 2038 Design Year traffic volumes were provided to the EIAR Noise and Air Quality consultants as an input to their own separate EIAR assessments. Therefore, additional traffic from the proposed development may potentially have associated Noise and Air Quality impacts. A series of mitigation measures will be implemented to minimise the operational stage traffic impact of the proposed development, which includes the implementation of effective Mobility Management Plan measures. Further details of the Noise and Air Quality assessments are set out in the respective EIAR chapters.

With regard to potential interactions with Human Health, the overall development has been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS). In addition, significant

improvements to the public realm are included in the overall design. The proposed pedestrian and cycle links through the proposed development would have significant long-term positive effects with regard to reduced walking and cycling travel times to public transport services and improved permeability and connectivity to amenities in the area. A Stage 1 Road Safety Audit has also been undertaken in respect to the previous permitted development, which is now undergoing compliance approval with the planning authority. A further Stage 2 & Stage 3 RSAs will be undertaken during the implementation phase of the development. A Mobility Management Plan will also be agreed and implemented to encourage more sustainable travel modes. Further details of the Human Health assessment is set out in a chapter 5 of this EIAR.

13.14 Difficulties Encountered

A potential difficulty was the impact that Covid -19 pandemic restrictions might have on any traffic flows recorded during this period as a basis of undertaking the traffic assessments. Fortunately traffic data was collected during 2019 in advance of the Covid-19 restriction which provided reliable baseline traffic data on which to undertake the assessments .

13.15 References

Glossary of Terms

AADT	Annual Average Daily Traffic
CDP	County Development Plan
DLR	Dun Laoghaire Rathdown County Council
GFA	Gross Floor Area
HGVs	Heavy Goods Vehicles
ILTP	ILTP Consulting
MMP	Mobility Management Plan
NTA	National Transport Authority
TTA	Traffic & Transport Assessment

Bibliography

Canal Cordon Report 2019 - Report on Trends in Mode Share of Vehicles and People Crossing the Canal Cordon 2006 to 2019, National Transport Authority / Dublin City Council, December 2020

Dun Laoghaire Rathdown County Development Plan 2016 – 2022, Dun Laoghaire Rathdown County Council

TII Traffic Data – TII web site.

Transport Strategy for the Greater Dublin Area 2016 - 2035, National Transport Authority, 2016

Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Draft), Environmental Protection Agency, August 2017

National Development Plan 2018 – 2027, Department of Finance and Public Expenditure and Reform

Project Ireland 2040 - National Planning Framework, Department of Housing, Planning and Local Government

Regional Spatial & Economic Strategy

Smarter Travel a Sustainable Transport Future – A New Transport Policy Document for Ireland 2009 – 2020, Department of Transport, 2009

Sustainable Urban Housing: Design Standards for New Apartments - Guidelines for Planning Authorities, Department of Housing, Planning and Local Government, 2020

Traffic & Transport Assessment and Mobility Management Plan (for Proposed Development), ILTP Consulting, March 2020

Annaghkeen Quality Audit MA 266 (Previously Permitted Development)

Traffic and Transport Assessment Guidelines, National Roads Authority / Transport Infrastructure Ireland, May 2014

Transport in the Urban Environment, The Institution of Highways & Transportation